

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-195913

(43)Date of publication of application : 30.07.1996

(51)Int.Cl.

H04N 5/44  
G09G 5/00

(21)Application number : 07-003831

(71)Applicant : HITACHI ENG CO LTD

(22)Date of filing : 13.01.1995

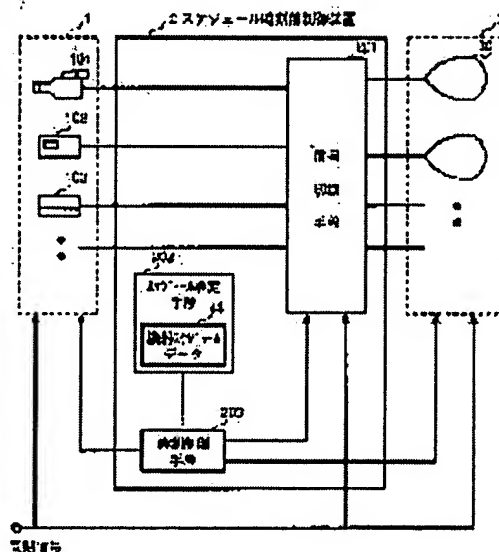
(72)Inventor : MIZUNASHI KOICHIRO

(54) DEVICE AND METHOD FOR PREVIOUSLY CONTROLLING SCHEDULE TIME FOR VIDEO/AUDIO EQUIPMENT

(57)Abstract:

PURPOSE: To display different images and sounds on plural display devices at the time adjacent to designated time as much as possible by preparing equipment schedule data and starting/controlling plural video/audio equipment and display devices.

CONSTITUTION: A schedule setting means 202 prepares equipment schedule data 44 by using plural pieces of display schedule data and preparation time data. A time control means 203 stores the data 44 and starts or controls a video camera 101, video tape recorder 102 and laser disk player 103, etc., of video/audio equipment 1 and a multidisplay 301 or the like of a display device group 3 through a signal switching means 201 based on the data 44. Thus, when switching the image, the preparation of video/audio equipment group 1 is completed and the display device group 3 can be switched without interrupting the image. Therefore, respective pictures are not missed and clear and stable pictures can be obtained inspite of plural pictures. )



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the

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[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of  
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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the control unit before schedule time of day and the control approach of the image and voice device controlled to be able to display automatically the output from two or more image and voice devices on two or more indicating equipments installed by approaching according to a display time-of-day schedule.

[0002]

[Description of the Prior Art] The control unit before schedule time of day of the conventional image and voice device was what only switches the image and voice from two or more image and voice devices, and displays it to one display as indicated by JP,63-228187,A. Generally, like before, although the setup time of search was required of an image and voice devices, such as a laser disk player and a video tape recorder, when the number of displays was one, and starting the visual equipment at the time of day which lengthened the setup time from the change-over time of day of an image and a voice device, an image and voice were able to be displayed.

[0003] For example, what was necessary was just to have performed the program of the flow chart shown in drawing 7 using an image and the voice device name N, the one-set display schedule data 41 that consisted of change-over time of day T, and the setup-time data 42 which consisted of the setup times TP of an image and the voice device name N, and an image and a voice device, as shown in drawing 5 and drawing 6. That is, an image and the voice device name N, and the change-over time of day T are read from the one-set display schedule data 41 at step 51, and then the setup time TP of an image and the voice device N is read from the setup-time data 42 (52). Next, it investigates having reached the time amount to which the current time of day  $t_n$  lengthened the setup time TP from the change-over time of day T, investigates that started (53) images and the voice device N, and the current time of day  $t_n$  reached (54) and a degree at the change-over time of day T, and the input of (55) and a display is switched to an image and the voice device N (56). In this case, when the time of day  $t_n$  present at step 53 was larger than  $T-TP$ , the problem was produced, but since display time was larger than the setup time enough, before usually starting front image and voice device, since the phenomenon in which the following image and voice device had to be started was not produced, it was satisfactory.

[0004]

[Problem(s) to be Solved by the Invention] However, new demand of wanting to all switch to coincidence the display which approached since the contents became hard to see when the number which a display becomes plurality and moreover has a display approached, it was installed and the contents of a display were switched one after another for every display came out.

[0005] The method of setting up the schedule data which also switch indicating equipments M2 and M3 to the same time amount as an indicating equipment M1, and coping with it is mentioned at the same time two or more display schedule data 43 M1, i.e., an indicating equipment, in case there are two or more indicating equipments are similarly set up with having been shown in drawing 5 as an approach of coping with this demand, as shown in drawing 4.

[0006] In this case, if it controls by the program of the same flow chart as the case where the number of the indicating equipments of drawing 7 is one, a switch of an indicating equipment M1 will progress satisfactory first. However, although the image and the voice device N2 were immediately started since the current time of day  $t_n$  was already over T1 when reading the data of an indicating equipment M2, the setup time for switching the display of an

indicating equipment M2 to N2 could not be secured, but there was a possibility that the problem that an image is disrupted and is not displayed might occur, during the setup time TP 2.

[0007] Moreover, in order to prevent disrupting an image and not displaying it, there was also the approach of switching, while securing the setup time, but to the change-over time of day set up to the schedule in this case, whenever these devices of control to each image and voice device increased, it had a possibility that the problem that where of a time lag arises, is late for the set-up change-over time of day rapidly, and is displayed on a display might occur.

[0008] The purpose of this invention is in the graphic display of many inputs and many outputs to offer the control unit before schedule time of day and the control approach of of the image and voice device which displays the image and voice which are different in two or more indicating equipments, and is outputted to the time of day possible nearest to the specified time of day.

[0009]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention the output of two or more image and voice devices In the control unit before schedule time of day of the image and voice device controlled according to the schedule to which display time of day was set beforehand to be able to display on two or more indicating equipments automatically While receiving and recording a schedule setting means to create the device schedule data in which the time of day when said each - voice device of an image and said indicating equipment should operate in each is shown, and said device schedule data It is characterized by having the time-of-day control means which sends the signal which controls said each voice [ - ] device of an image, and said display in each, and the signal means for switching which switches the connection between said each voice [ - ] device of an image, and said display of each with said signal using said device schedule data.

[0010] Moreover, other descriptions of this invention are set to the control-before schedule time of day approach of of the image and voice device controlled to be able to display automatically the output of two or more image and voice devices on two or more indicating equipments according to the schedule to which display time of day was set beforehand. While receiving and recording the schedule setting step which creates the device schedule data in which the time of day when said each - voice device of an image and said indicating equipment should operate in each is shown, and said device schedule data It is in having the time-of-day control step which sends the signal which controls said each voice [ - ] device of an image, and said display in each, and the signal change-over step which switches the connection between said each voice [ - ] device of an image, and said display of each with said signal using said device schedule data.

[0011]

[Function] According to this invention, device schedule data are created with a schedule setting means using the setup-time data and two or more display schedule data which memorized the starting performance of each device of two or more image and voice devices beforehand, and it transmits to a time-of-day control means by the communication circuit. These device schedule data are memorized, a signal change means is minded based on device schedule data, and two or more image, voice device, and two or more displays are started and controlled by the time-of-day control means. A display can be switched without having completed preparation of an image and a voice device and an image stopping by this, when switching an image. That is, since what is necessary is to generate only the change-over signal of a display at change-over time of day if the image and the voice device to be used are altogether started in advance of change time of day, the delay of a signal also decreases. Since especially the display device that approached can also be switched continuously, the image of two or more display devices can also be mostly switched to coincidence.

[0012]

[Example] Hereafter, the control unit before schedule time of day and the control approach of of the image and voice device concerning one example of this invention are explained.

[0013] Drawing 1 shows the functional configuration of the control unit before schedule time of day of the image and voice device concerning one example of this invention. The image and voice device group which 1 becomes from two or more image and voice devices, and 2 are display groups which consist of a control unit before schedule time of day of an image and a voice device, and a display of plurality [ 3 ].

[0014] The control device 2 before schedule time of day of an image and a voice device consists of a signal means for switching 201, a schedule setting means 202, and a time-of-day control means 203.

[0015] Using two or more display schedule data 43 and the setup-time data 42, with the number of the devices switched to the starting performance and coincidence of each device to which two or more display schedule 43 was set, the schedule setting means 202 performs that count which should just control the device how many seconds ago, creates the device schedule data 44, and sends them to the time-of-day control means 203. The time-of-day control means 203 memorizes the sent device SUKEJURU data 44. If the change-over time of day of a schedule comes, the time-of-day control means 203 will send the signal which controls each image, voice device, and each display based on the device schedule data 44. The signal means for switching 201 switches the connection between said each voice [ - ] device of an image, and said display of each with the signal generated in the time-of-day control means 203.

[0016] And the time-of-day control means 203 starts the video camera 101, the video tape recorder 102, and the laser disk player 103 of the image and the voice device group 1 specified respectively. Furthermore, the multi-display 301 of the indicating-equipment group 3 is controlled.

[0017] Drawing 2 is created based on two or more display schedule data 43 of drawing 4 , and the setup-time data 42 of drawing 6 , and shows the device schedule data 44 for controlling each image, voice device, and indicating equipment. It asks for the starting time of day of each image and voice device from two or more display schedule data 43 and the setup-time data 42, and it is rearranged in order of time of day. It is assumed that the setup time becomes small in order of TP2, TP3, and TP7.

[0018] Drawing 3 shows the control flow chart based on the device schedule data 44 of drawing 2 . First, a visual equipment N2 is started to time-of-day T1-TP2 at step 21. Next, N3 is started to time-of-day T1-TP3, and N7 is started to (22) time-of-day T1-TP7 (23). Next, an image and the voice device N3 are connected to a display M1 at time of day T1 (24). Then, N2 is made M2 and sequential connection of (25) and N7 is made M3 (26). Next, an image and the voice device N5 are started to time-of-day T2-TP5 at step 27. And if time of day T2 comes, it will switch to N5 from N3 connected previously, and N5 is connected to M1 (28). It is outputted to a display without disrupting an image and voice by this.

[0019] When the load of a control device becomes heavy and modification usually arises in two or more display schedule data 43, the control approach of following these device schedule data 44 will need to change the device schedule data 44, and it has the problem of taking time amount too much, by performing this modification processing, generating the real-time-control signal of many devices.

[0020] To this problem, as shown in drawing 1 , a time-of-day control means and the schedule setting means 202 are established separately, and control which generates a control signal, and processing which changes the device schedule data 44 can be performed to juxtaposition, and it can be coped with.

[0021] As mentioned above, in this example, to the specified display time-of-day schedule, it cannot be confused to coincidence and the output of all the specified images and voice output device groups can be displayed on a display group.

[0022]

[Effect of the Invention] Since the image and voice which are different in two or more displays can be displayed and outputted to the time of day possible nearest to the specified time of day according to this invention, there is also no lack of each screen and the screen stabilized and it was legible in spite of two or more screens can be offered.

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TECHNICAL FIELD

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[Industrial Application] This invention relates to the control unit before schedule time of day and the control approach of the image and voice device controlled to be able to display automatically the output from two or more image and voice devices on two or more indicating equipments installed by approaching according to a display time-of-day schedule.

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PRIOR ART

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EFFECT OF THE INVENTION

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[Effect of the Invention] Since the image and voice which are different in two or more displays can be displayed and outputted to the time of day possible nearest to the specified time of day according to this invention, there is also no lack of each screen and the screen stabilized and it was legible in spite of two or more screens can be offered.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, new demand of wanting to all switch to coincidence the display which approached since the contents became hard to see when the number which a display becomes plurality and moreover has a display approached, it was installed and the contents of a display were switched one after another for every display came out.

[0005] The method of setting up the schedule data which also switch indicating equipments M2 and M3 to the same time amount as an indicating equipment M1, and coping with it is mentioned at the same time two or more display schedule data 43 M1, i.e., an indicating equipment, in case there are two or more indicating equipments are similarly set up with having been shown in drawing 5 as an approach of coping with this demand, as shown in drawing 4.

[0006] In this case, if it controls by the program of the same flow chart as the case where the number of the indicating equipments of drawing 7 is one, a switch of an indicating equipment M1 will progress satisfactory first. However, although the image and the voice device N2 were immediately started since the current time of day tn was already over T1 when reading the data of an indicating equipment M2, the setup time for switching the display of an indicating equipment M2 to N2 could not be secured, but there was a possibility that the problem that an image is disrupted and is not displayed might occur, during the setup time TP 2.

[0007] Moreover, in order to prevent disrupting an image and not displaying it, there was also the approach of switching, while securing the setup time, but to the change-over time of day set up to the schedule in this case, whenever these devices of control to each image and voice device increased, it had a possibility that the problem that where of a time lag arises, is late for the set-up change-over time of day rapidly, and is displayed on a display might occur.

[0008] The purpose of this invention is in the graphic display of many inputs and many outputs to offer the control unit before schedule time of day and the control approach of of the image and voice device which displays the image and voice which are different in two or more indicating equipments, and is outputted to the time of day possible nearest to the specified time of day.

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MEANS

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[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention the output of two or more image and voice devices In the control unit before schedule time of day of the image and voice device controlled according to the schedule to which display time of day was set beforehand to be able to display on two or more indicating equipments automatically While receiving and recording a schedule setting means to create the device schedule data in which the time of day when said each - voice device of an image and said indicating equipment should operate in each is shown, and said device schedule data It is characterized by having the time-of-day control means which sends the signal which controls said each voice [ - ] device of an image, and said display in each, and the signal means for switching which switches the connection between said each voice [ - ] device of an image, and said display of each with said signal using said device schedule data.

[0010] Moreover, other descriptions of this invention are set to the control-before schedule time of day approach of of the image and voice device controlled to be able to display automatically the output of two or more image and voice devices on two or more indicating equipments according to the schedule to which display time of day was set beforehand. While receiving and recording the schedule setting step which creates the device schedule data in which the time of day when said each - voice device of an image and said indicating equipment should operate in each is shown, and said device schedule data It is in having the time-of-day control step which sends the signal which controls said each voice [ - ] device of an image, and said display in each, and the signal change-over step which switches the connection between said each voice [ - ] device of an image, and said display of each with said signal using said device schedule data.

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OPERATION

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[Function] According to this invention, device schedule data are created with a schedule setting means using the setup-time data and two or more display schedule data which memorized the starting performance of each device of two or more image and voice devices beforehand, and it transmits to a time-of-day control means by the communication circuit. These device schedule data are memorized, a signal change means is minded based on device schedule data, and two or more image, voice device, and two or more displays are started and controlled by the time-of-day control means. A display can be switched without having completed preparation of an image and a voice device and an image stopping by this, when switching an image. That is, since what is necessary is to generate only the change-over signal of a display at change-over time of day if the image and the voice device to be used are altogether started in advance of change time of day, the delay of a signal also decreases. Since especially the display device that approached can also be switched continuously, the image of two or more display devices can also be mostly switched to coincidence.

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EXAMPLE

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[Example] Hereafter, the control unit before schedule time of day and the control approach of of the image and voice device concerning one example of this invention are explained.

[0013] Drawing 1 shows the functional configuration of the control unit before schedule time of day of the image and voice device concerning one example of this invention. The image and voice device group which 1 becomes from two or more image and voice devices, and 2 are display groups which consist of a control unit before schedule time of day of an image and a voice device, and a display of plurality [ 3 ].

[0014] The control device 2 before schedule time of day of an image and a voice device consists of a signal means for switching 201, a schedule setting means 202, and a time-of-day control means 203.

[0015] Using two or more display schedule data 43 and the setup-time data 42, with the number of the devices switched to the starting performance and coincidence of each device to which two or more display schedule 43 was set, the schedule setting means 202 performs that count which should just control the device how many seconds ago, creates the device schedule data 44, and sends them to the time-of-day control means 203. The time-of-day control means 203 memorizes the sent device SUKEJURU data 44. If the change-over time of day of a schedule comes, the time-of-day control means 203 will send the signal which controls each image, voice device, and each display based on the device schedule data 44. The signal means for switching 201 switches the connection between said each voice [ - ] device of an image, and said display of each with the signal generated in the time-of-day control means 203.

[0016] And the time-of-day control means 203 starts the video camera 101, the video tape recorder 102, and the laser disk player 103 of the image and the voice device group 1 specified respectively. Furthermore, the multi-display 301 of the indicating-equipment group 3 is controlled.

[0017] Drawing 2 is created based on two or more display schedule data 43 of drawing 4 , and the setup-time data 42 of drawing 6 , and shows the device schedule data 44 for controlling each image, voice device, and indicating equipment. It asks for the starting time of day of each image and voice device from two or more display schedule data 43 and the setup-time data 42, and it is rearranged in order of time of day. It is assumed that the setup time becomes small in order of TP2, TP3, and TP7.

[0018] Drawing 3 shows the control flow chart based on the device schedule data 44 of drawing 2 . First, a visual equipment N2 is started to time-of-day T1-TP2 at step 21. Next, N3 is started to time-of-day T1-TP3, and N7 is started to (22) time-of-day T1-TP7 (23). Next, an image and the voice device N3 are connected to a display M1 at time of day T1 (24). Then, N2 is made M2 and sequential connection of (25) and N7 is made M3 (26). Next, an image and the voice device N5 are started to time-of-day T2-TP5 at step 27. And if time of day T2 comes, it will switch to N5 from N3 connected previously, and N5 is connected to M1 (28). It is outputted to a display without disrupting an image and voice by this.

[0019] When the load of a control device becomes heavy and modification usually arises in two or more display schedule data 43, the control approach of following these device schedule data 44 will need to change the device schedule data 44, and it has the problem of taking time amount too much, by performing this modification processing, generating the real-time-control signal of many devices.

[0020] To this problem, as shown in drawing 1 , a time-of-day control means and the schedule setting means 202 are established separately, and control which generates a control signal, and processing which changes the device schedule data 44 can be performed to juxtaposition, and it can be coped with.

[0021] As mentioned above, in this example, to the specified display time-of-day schedule, it cannot be confused to

coincidence and the output of all the specified images and voice output device groups can be displayed on a display group.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the functional configuration of the control device before schedule time of day of the image and voice device concerning one example of this invention.

[Drawing 2] It is drawing showing the schedule of the switching time of each device used for the control device before schedule time of day of the image and voice device of drawing 1.

[Drawing 3] It is the flow chart Fig. of the control device before schedule time of day of the image and voice device concerning one example of this invention.

[Drawing 4] It is drawing showing the schedule data in the case of having two or more indicating equipments.

[Drawing 5] It is drawing showing the schedule of the time of day when each the conventional image and voice device should operate.

[Drawing 6] It is drawing showing the setup time for each image and voice device to start.

[Drawing 7] It is the flow chart Fig. of control-before schedule time of day processing of the conventional image and voice device.

### [Description of Notations]

1 [ -- A laser disk player, 2 / -- The control device before schedule time of day, 201 / -- A signal means for switching, 202 / -- A schedule setting means, 203 / -- A time-of-day control means, 3 / -- An indicating-equipment group, 301 / -- A multi-display, 41--1 set display schedule data, 42 / -- Setup-time data, 43 / -- Two or more display schedule data, 44 / -- Device schedule data ] -- An image and a voice device group, 101 -- A video camera, 102 -- A video tape recorder, 103

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## DRAWINGS

## [Drawing 2]

図 2

44 機器スケジュールデータ

	操作C	切換時刻T
1	N2起動	T1-TP2
2	N3起動	T1-TP3
3	N7起動	T1-TP7
4	M1←N3	T1
5	M2←N2	T1
6	M3←N7	T1
7	N5起動	T2-TP5
8	M1←N5	T2
⋮		

## [Drawing 4]

図 4

43 複数表示スケジュールデータ

	映像・音声 機器名N	表示装置名M	切換時刻T
1	N3	M1	T1
2	N2	M2	T1
3	N7	M3	T1
4	N5	M1	T2
5	N1	M1	T3
6	N6	M2	T3
7	N3	M3	T3
⋮			

## [Drawing 5]

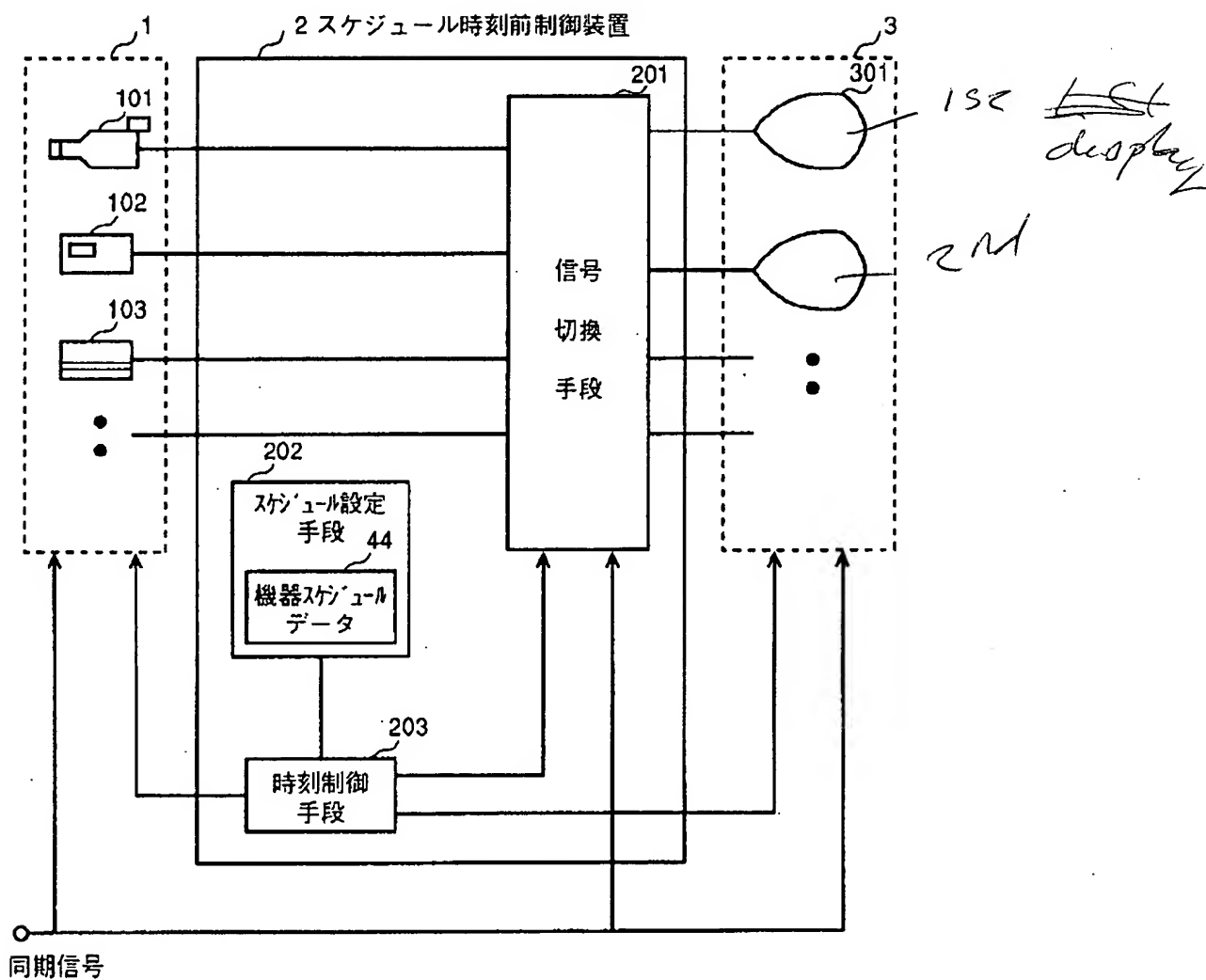
図 5

41 1台表示スケジュールデータ

	映像・音声機器名N	切替時刻T
1	N3	T1
2	N5	T2
3	N1	T3
	⋮	

[Drawing 1]

図 1



[Drawing 6]



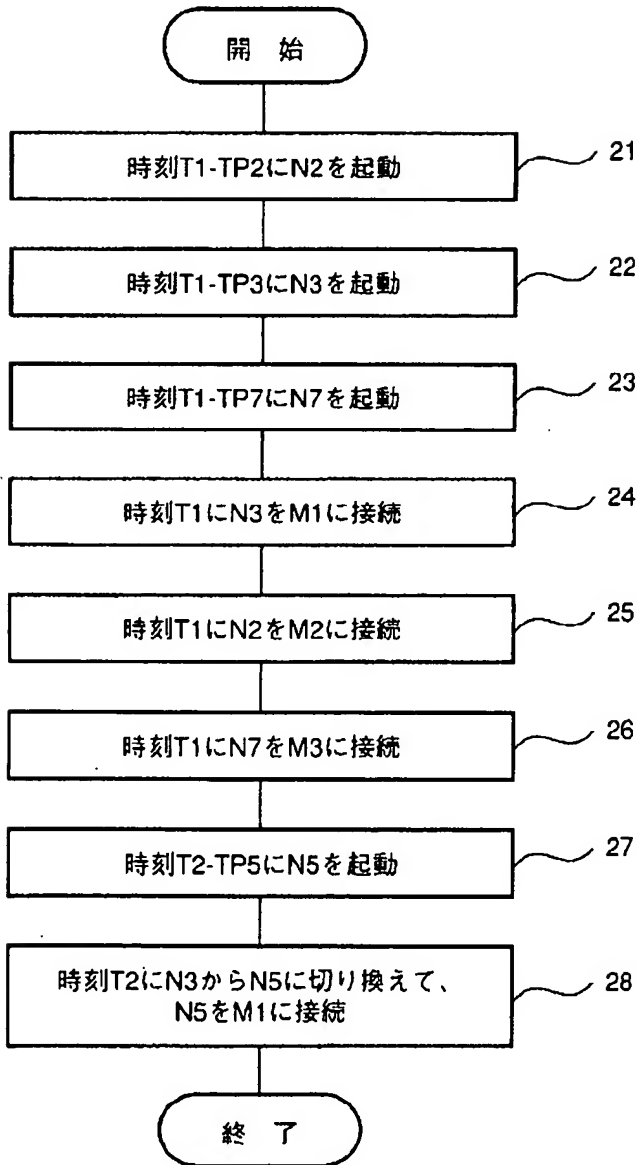
図 6

42 準備時間データ

映像・音声機器名N	準備時間TP
N1	TP1
N2	TP2
⋮	
Nn	TPn

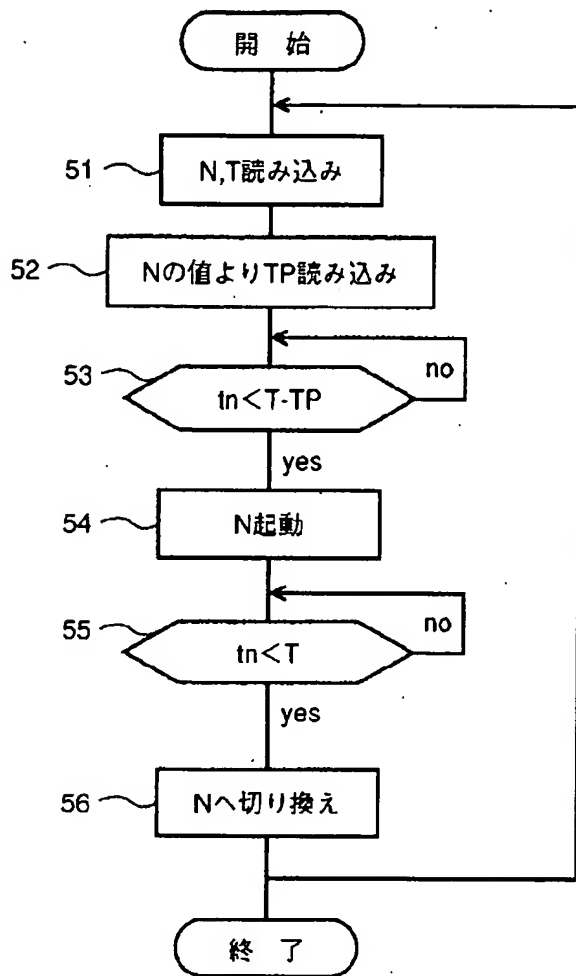
[Drawing 3]

図 3



[Drawing 7]

図 7



[Translation done.]